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AUTHOR Potter, Edwin E., Jr.
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ABSTRACT

This paper summarizes the discussion from a forum to explore a logical and feasible means by which South Florida could reach its carrying capacity and experience no further growth. The opening presentation explained the relationships among (1) the area's land, water, and natural ecosystems, (2) natural sources of energy and imported fuels, (3) energy principles such as conservation and diminishing returns, and (4) carrying capacity of a system in terms of energy input and net production. Next on the agenda, discussion groups were asked to assume that South Florida had reached a steady state (no growth) and to consider five questions in light of that assumption. (1) Would the relationship between services provided by government and goods and services produced by the private sector change in a no growth situation? (2) How valid is the current land-use plan for Dade County (part of South Florida) if a steady state were achieved? (3) Would people's life style change as a result of no growth? (4) What are the effects of no growth on government, construction, real estate, tourism, agriculture, transportation and communication, education, legal services, manufacturing, banking and finance, retail sales and distribution, and medicine? and (5) What course of action could the government and industry take to minimize the effects of no growth? Concluding comments summarized the effects of no growth on the area's economic, physical, and social systems. (AV)

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LIMITS TO GROWTH ATTAINED

A Summary of the Proceedings

by E.E. Potter, Jr.

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On may 18, 1979, a forum was conducted titled "Limits to Growth Attained." All participants were to receive a summary of the proceedings of the forum. The Social Science Division of Miami-Dade Community College, which hosted the forum, wishes to thank you for your participation and provides you with the following summary. You may draw your own conclusions from it.

Mr. Mark T. Brown of the Center for Wetlands, University of Florida, was the key speaker. He was requested to provide background for "The South Florida Study" and to present a logical and feasible means by which South Florida could reach its carrying capacity and experience no further growth. Following Mr. Brown's presentation the participants divided into three discussion groups. They directed their discussion toward responses to specific questions provided. Following a lunch break a member from each discussion group joined a panel to present the salient points discussed by the group.

Mr. Mark Brown's initial comments are summarized as follows:

1. Background for the South Florida Study - The study was initially a compilation of several impact studies requested as a result of the controversy over the jetport. Eventually, the many impact studies were synthesized together into one report entitled "The South Florida Study."
2. General Systems Theory - In order to understand a system in its proper relationship, one must step back, so to speak, to

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see how the next larger system functions and then integrate the smaller system with it. "The South Florida Study" applied this principle. It attempted to take a look at Dade County (and other counties as well) by analyzing how it fits into the South Florida regional land, water and natural ecosystems. The term South Florida as it is used in the study includes the peninsular land mass from about Fort Pierce to Fort Myers plus the Kissimmee River Basin.

3. Energy - Energy, in the context of Mr. Brown's presentation, was construed to mean not only fuels and electricity, but also sunlight, wind, waves, food, nutrients, goods and services. The term as used included non-renewable resources, renewable resources, things that require energy for their production or manufacture, and so forth. Energy utilized in South Florida occurs both from natural sources originating here, from imported fuels, and from imported energy-based goods. Everything was perceived to have an energy component.

4. Energy Laws - Four principles exist which have universal application to both inanimate and living systems. They were enumerated as follows:

   a. Conservation - Energy is not created or destroyed. It is transformed and in so doing it can perform work.

   b. Degradation - In all processes some of the energy involved will be changed into an unusable form. Orderly structures and patterns will tend to drift toward disorder and some of the energy within the structure or pattern will have to be expended to maintain order.

c. Diminishing Returns - Energy required to maintain a system increases as the size of the structure or system increases and it increases exponentially. The principle involved here, simply stated, is as follows: If the cost in energy and, hence money, of some activity increases steeply with the degree of activity, the benefits of it rapidly diminish.

d. Maximum Power Principle - All systems organize themselves to maximize the energy available to them. In competition the systems that survive are able to get the most energy fastest and use it to meet their survival needs. They must develop energy storage, diversity of energy in-flows, enhanced efficiency, effective organization and outputs to exchange with other systems.

5. Carrying capacity - An analogy was used to describe the concept of carrying capacity. Cattle raised on open, native ranges require about 15 to 50 acres per cow. Open range utilizes only naturally occurring energy - i.e., sun, rain, etc. By importing energy (or improving the range) such as clearing, planting pasture grass, fertilizing, irrigating, fencing, etc., one can increase the carrying capacity to 1 to 25 cows per acre. By importing feed to supplement the pasture grass the carrying capacity can be increased further. So it goes for South Florida. Each time we add to the population we must add energy to the system. One of the dilemmas created, however, is that when the carrying capacity of a system is increased,

the natural energy systems are disrupted and destroyed. This places an even greater need for imported energy. In short, the carrying capacity of a system is a relative thing. It can be increased with increased energy input until the system is no longer competitive with other systems. At that time the limits to growth of the system are attained.

Following Mr. Brown's introductory comments discussion groups were formed and asked to assume Dade County has reached a steady state. With that as a basic assumption they discussed five questions and appointed a panelist to summarize their discussion. Presentations of the panelists incorporated the salient points made in each discussion group. The questions posed and a synthesis of the responses to each question follows:

Question One. Do you think the relation ship between services provided by government and goods and services produced by the private sector will change in a no growth situation?

Summarized Responses:

It was brought out that a steady state economy might be possible at such a time when the resources of an area are no longer able to support growth. It was not seen to be possible as a result of fiat or governmental intervention. In a democratic system, if the growth potential is there growth will occur. On the other hand, however, when a region is no longer competitive with other regions, and people can get more for their investment elsewhere, they will go where they get the greatest return.

No growth was defined by some groups as meaning no population growth. It was thought that since Gross Regional Product was not necessarily a function of population there could be continued economic growth. This opinion was further supported by the supposition that a population mix could vary even though there were no change in the total numbers of people.

The relationship between governmental services and those of the private sector would be varied and complex. In government it might be a "mixed blessing". With a "fixed" total population there might be a reduction in demand for some services, but with a variable mix within the population there might be a greater demand for other services. During the time of fluctuation and adjustment the per capita costs of government might rise. For example, since there might be no need to plan for further growth the thrust of planning might be in the area of retrenchment as well as finding new ways to serve the public and improving those services already available. Some services now performed by government might be turned over to the private sector as the need for newer services becomes obvious. In the short-term there might be a significant need for a more centralized government if things become chaotic. It would be necessary to assist people as they relocate, retrain, resettle, and, in general, readjust. A long term effect might call for less governmental involvement as people become more self-reliant and self-sufficient.

In the private sector the impact of no growth might cause a significant revision of the objectives of those industries serving people's changing needs. The construction industry, for example, might have to shift emphasis from building new units to modifying and maintaining units already built or reconstructing out-moded or unused units. A rise in cooperative-type organizations might cause less need for large numbers of retail outlets. In the manufacturing of products an increase of "do-it-yourselfers" might necessitate more products to be marketed in kit form. Interestingly, along these same lines, one discussion group thought there might be less emphasis placed on formal and vocational schooling as the trades industry implemented apprenticeship programs.

Question Two. Does no growth necessarily mean that the land-use plan for Dade County is "in place"?

Summarized Responses:

Each of the discussion groups thought that the land-use master plan would have to remain in force. Since the current plan is based on growth, it would have to be amended. Some participants

foresaw a shift of population concentration to the inner city, whereas growth is now toward the peripheral areas. It was also brought out that shifts in age structure, ethnic mix, and so forth, would require concomitant land-use changes. Furthermore, changes in the relationships between government and private enterprise accompanied with other changes outlined in Question One would require a flexible land-use plan. One discussion group foresaw population shifts away from the inner city to satellite, planned urban communities. Shifts in industrial centers and governmental centers were perceived to accompany the population shifts and dynamic planning was deemed necessary to accomplish the moves.

Question Three. Do you think people's life-style will necessarily change as a result of no growth?

Summarized Responses:

Each discussion group responded differently to this question. One group thought that life-styles would not be altered significantly from the way we now know it. Life-styles change now for various reasons in spite of a "growth" mode. They might change somewhat as a natural turn of events. A "no growth" society may, however, free people up so that they are able to change their life-style as other changes in society occur.

The other discussion groups thought there might be a rather drastic change in life-styles on a short term basis. They differed, however, in their long-range projections: one thought that the changes would be minor after the initial adjustments had been made; the other thought that the drastic changes would persist. All groups agreed that the quality of life would be better.

Some specific examples of change which people may experience in a steady state were: (a) people would become more self-reliant, but at the same time there would be greater cooperation between groups and individuals; (b) there would be smaller living quarters and a higher population density (shift to the inner city) which would require some adaptation; (c) there would be less governmental controls needed because of the increased cooperative spirit; (d) as new neighborhoods are created in the inner city or satellite planned, urban communities there would be a new surge of urban (or suburban) planning and renewal; (e) individuals as well as

community planners would be faced with fitting old structures and roads, etc., to satisfy new needs; (f) they would be faced with decisions to be made to maximize the use of natural resources; (g) they would be closer to their jobs and to their leisure time activities which would require less commuting time and more public transportation; (h) more leisure time would be devoted to family activities such as gardening, handicraft, picnics, etc., and more needs would be fulfilled at home; (i) technology would still be flourishing, however, particularly in the areas of electronics, data processing and information processing so that communication networks would keep communities enlightened about social trends and the financial world kept up to date. Sociologically, a no growth situation was perceived to create a social class structure with greater numbers of "haves" and "have-nots" with a diminishing of the middle classes.

Question Four. What effects would no growth have on your particular industry or service area?

Summarized Responses:

(a) Government - a static population would allow the public sector to function better by "catching up" on the planning and providing of services it now offers. It would also provide time for analysis and implementation of services needed but not now offered. Some difficulty might be encountered in justifying budget requests, amendments, and new budget items. These difficulties might carry over into the tax structure of the area. Both services and the tax support for them would probably have to be justified by complex impact studies or other means rather than population projections. Other effects on government already mentioned earlier in this report would be a short-term increase in the need for more government control followed by less government intervention and more diffused or decentralized government. There would probably be a greater need for cooperation between the public and private sectors as industries compete for a piece of the "static financial pie".

(b) Construction - There would be serious problems in this industry as they attempt to transfer emphasis on reconstruction, renovation, conversion, repair, and maintenance activities. The industry would be more competitive and the quality of their product would improve. New design and building techniques would be developed as the demand for more passive architecture becomes greater.

(c) Real estate - The quality of personnel and services would probably improve in the real estate business as they make the shift from making a "fast buck" on the big sales to the slower pace of handling rentals and resales. Personnel would probably have to have more and better training which might make the costs of the service go up. It was predicted that prices of land would go up.

(d) Tourism - No groups thought that tourism would be adversely affected although there was some discussion about the availability of natural resources to support random fluctuations in the population as a result of the tourist trade. In general, tourism would remain a mainstay of the economy.

(e) Agriculture - Agricultural activities would be greatly effected. It is a large part of the economy presently and was predicted to become even more important. One need seen was for a greater diversity in crops and for more crops to be consumed locally. Homesites would probably include more vegetable gardens but, due to the generally small amount of of space available, such gardens would not satisfy the demand.

(f) Transportation and Communication - There would probably be a greater emphasis on low energy types of transportation for private individuals and a greater need for mass transit systems. With increased use there would be a greater demand for higher quality in the transportation industry and the demand would be met, probably at a higher cost. There would necessarily be a need for a complex communications network with

fewer people traveling out of their local community; probably there would also arise a need for more local communication systems such as the neighborhood newspapers.

(g) Education - Most comments made about the schools have already been covered earlier in this report. Briefly, it was thought that there would be less emphasis on higher education, that educational programs would emphasize the basic skills of communications, mathematics and citizenship, home skills, and work skills. Education would also be involved in retraining of people who change occupations as well as upgrading of occupational skills. These latter functions might be assumed by industry itself in the form of apprenticeship programs and advancement programs.

(h) Judicial - It was thought that there would be a reduction in the needs for legal services. With increased cooperative spirit among citizens, criminal activities were projected to decline; with greater emphasis on mass transit, automobile-related traffic cases were predicted to decrease in numbers; civil infractions might increase, however, as well as adjudication of land-use disputes. These were seen to increase as people come in closer contact with each other and as the land-use master plan is revised. Overall, the need for legal services and court action was seen to become less on a long-range basis.

(i) Manufacturing - The light manufacturing industry, it was thought, would be affected less than heavy manufacturers; however, there might be differential effects within the light industries. Those companies dealing with oil based products might suffer most--such as paints, plastics, synthetics, and some chemicals. Light industries which manufacture household necessities would probably have fewer problems--particularly if the raw supplies used are from renewable resources or commonly occurring materials.

(j) Banking and Finance - With the rise of cooperatives, do-it-yourselfers, and the general self-sufficiency of the people, it was thought that there would be a decline in financial activities in general. Mortgage financing would probably shift to emphasis on re-financing; cash flow would probably be reduced, credit transactions would probably be fewer. Probably the whole investment business would be drastically revised; however it would remain a major part of the economy.

(k) Retail Sales and Distribution - It was thought that the retail outlets might be adversely affected. The formation of neighborhood cooperatives and the increase of constructive, home-oriented leisure activities would be an influencing factor. With more effort being put into meeting local demands with local supplies and local natural resources, goods brought into the region might decline. Such a situation would force retailers to re-examine how they fit into the changing scene. Population shifts to the inner city and its satellite, planned-neighborhoods might also require a shift from large chain operations to neighborhood, proprietary stores.

(l) Medical - There would still be great emphasis on health and safety. It was seen that this could be a time for "catching up" and improving what services are now available. There might be less need for specialization in the medical field and a return to the old neighborhood, family practice.

Question Five. What course of action should government and industry take so that the effects of no growth would be minimized?

Summarized Responses:

"Effects" in this question were assumed by all discussion groups as "negative effects". Things that the public and private sectors could do to minimize the shock of steady state were mostly governmental responsibilities. Although there is presently a considerable amount of cooperation, it was indicated that this must increase. The government, it was hoped, would: a) embark on a large publicity campaign to assist citizens to see what was happening, why it was happening, and how to adjust to the changing conditions; b) impost controls during the transition to minimize inequities that might occur; c) review licensing and minimum standards to assist in the shift from quan-

tity (for growth) to quality; d) revise labor laws to allow older children to enter the trades as apprentices; e) revise school attendance laws and curricula to adjust for the changing needs indicated earlier; f) review unemployment compensation laws so that displaced persons must receive retraining; g) revise minimum wage laws so that basic labor can be obtained and having jobs can be competitive with remaining unemployed; and, finally, concentrate on developing (with the private sector) an organized, rational community plan for"surviving"the transitional phases of the change. The plan should fairly include, as was discussed in other sections, a means for shifting and revising government services and even for government phasing itself out where necessary and for decentralizing itself.

At the end of the panel presentations, Mr. Mark Brown was asked to react (from the studies of systems models developed at the Center for Wetlands) to the conclusions brought out in the discussion groups and reported by the panelists. He made remarks in the following four areas:

A. General Considerations of Steady State Regional Systems

1. We must keep in mind that a steady state system means no growth in the total amount of structure or assets (i.e., no net growth), but this does not mean a stagnant system, for there is continual growth. It is a growth by replacement. In other words, as parts of the system become worn out or senescent (such as roads, buildings, machines, furniture, etc.) they are replaced...new parts are "grown" to replace that which has become senescent. Much like a climax forest, there is not over all growth of the system, but growth by replacement. As a tree grows old and dies, it is replaced by a new tree that grows up to take its place.

2. It is important to understand that if there is no growth in the energy sources of a region, and thus in the physical structure of the system, and there is growth of population, then the energy, resources, and structure of the region must be divided amongst an increasing population base. Each inhabitant receives less and less as the population grows. Thus "standard of living" suffers.
3. Since money and energy are intricately interwoven in the regional systems of man, a leveling in the availability of energy will mean a leveling of growth and must also mean a leveling of the capital available for expenditure and investment. If energies remain constant and the availability of money is allowed to increase, inflation will result since more money will circulate for the same amount of energy. Thus, during times of constant energy supply when energies are not increasing, there should be no increases in the amount of money in circulation.

B. Changes and Effects on the Economic System

1. The supply of money will be constant, and there will be little credit. Since there will be no increase in energy in the future, there is nothing to lend money against; for only if there is an increasing energy base is there the possibility of paying back the principal as well as the interest on a loan.
2. As the supplies of energy decrease and become more costly, labor will play an increasing role in productive processes, and all members of society will be called upon to maintain productivity of the system. Wages may fluctuate at first, but they should stabilize as the system adjusts to lower energy conditions.
3. Imports and exports will play a lesser role in the regional economy as the energy costs of transpotation increase with lower energy availability. Thus a "regionalization" of production and consumption will result and the availability of goods and services (the extreme diversity now available) will decline.

4. There may still be some tourism, but at a much reduced scale, with visitors traveling by mass transit such as trains and ocean going vessels.
5. Since pensions and social security are based on the expectation of increasing supplies of energy in the future when the income is paid to recipients, and since there will be no increase in energies in the steady state pattern, income to the region from these sources will decline. Communities whose economic base is largely derived from these sources will have difficulties in maintaining economic well-being.
6. Industries which rely on local resources and energies (such as solar) technology and agricultural industries) will increase in productive output and then level off as the economy becomes more regional. Those industries that are primarily growth industries (i.e., construction) will decline and become more maintenance oriented.
7. Since the Port of Miami is increasingly becoming the "gateway" to South America, and since the countries of South America have some large supplies of resources and energies, the port and thus the economy of the region will be somewhat tied to these countries. Importing and exporting goods to them will increase for a time until these resources and energies decline. Thus there may be a short term increase in the importance that the port plays in the economy.

C. Changes and Effects on the Physical Systems

1. Transportation will become more localized, with the majority of travel by mass transportation, bicycles, and walking, as well as other very efficient means of transportation. Thus there will not be the need for expansion of super highways and interstate systems. Rail and some water transportation will again become important.
2. As present day air conditioned buildings become senescent they will be replaced by buildings that can be naturally cooled and heated. The very large scale buildings of the downtowns and the

beaches will eventually be replaced by smaller scale, more efficient, naturally ventilated structures.

3. The size of the urban populations will decrease as inhabitants leave the urban centers for the rural areas. Thus there will be a shift of construction energies and total structure away from the urban cores to outlying agricultural regions.
4. Cities will be of a more human scale, as they are planned around pedestrian, bicycle, and some small scale vehicle traffic. Green spaces and productive crop areas will become important uses of the urban landscape.
5. Natural wetland ecosystems will be utilized as recycle systems for sewage wastes and as water conservation units. Recycle of materials will continue to increase and become of prime importance.
6. Housing will utilize more passive heating and cooling systems, with emphasis on solar heating and natural breezes and forced air for cooling. Natural vegetation will replace exotic landscapes and manicured lawns.
7. As central cities decrease in population size, rural places will increase as the population seeks a more even distribution on the landscape. Mass transportation between central cities and rural places will increase as central cities will retain their attractivenes, social, cultural, and educational centers.

D. Changes and Effects on the Social Systems

1. As population densities decline, so will the negative consequences of population density such as crime, poverty, and stress of all forms.
2. The need for labor will increase, thus all members of society will have productive roles. Unemployment will decline, women and older Americans will continue to take a more active part in the labor force.
3. There will be less emphasis on higher education, with more education of individuals in the trades and crafts. There will be less need for specialists of all kinds and education will shift emphasis to a more general education, with less need to prepare the student to fit into a very complex social system.

4. The family unit will become of greater importance, with smaller scale social systems such as blocks and neighborhoods having primary importance over national and global systems. The trend will be for more regionalization of culture rather than the reverse that has been predicted.
5. As the negative aspects of population density interactions decrease, there will be less need for the professions that are trained to deal with these problems, and more of a need for professions that deal with organizing populations in productive tasks.
6. Politics will take on a more regional character, with more participation by individuals in the governing of local populations. In general there will be less of a need for complex laws to protect the individual rights, and more of a need for legislation to protect the "common good".